STRATEGIC INITIATIVES

I N FISCAL 2001, the Librarian of Congress established the position of associate librarian for Strategic Initiatives (ALSI) to develop a full range of digital policies and operations for acquiring, describing, and preserving content created and distributed in electronic form (such as electronic journals and books, Web sites, and databases). The office will also manage the life cycle of digital materials as part of the Library's universal collection for the nation. Laura Campbell, director of the National Digital Library (NDL) Program, was reassigned to the position of associate librarian for Strategic Initiatives in October 2000. Throughout the year, Ms. Campbell retained her title as NDL Program director, with additional responsibilities for overall strategic planning for the Library, overseeing Information Technology Services (ITS), leading a new internal information technology planning group, and working with external partners.

The primary focus of the ALSI in fiscal 2001 was strategic planning for Congress's appropriation of $99.8 million to develop and implement a congressionally approved National Digital Information Infrastructure and Preservation Program. The ALSI initiated a two-tier strategy to develop this national program. The first tier focuses inward on the Library's technology infrastructure and policies. The ALSI convened internal policy groups to identify issues and develop recommendations for a broad range of complex topics, from rights management to criteria for universal collecting. The second tier focuses on collaboration with the public and private sectors. The ALSI convened the

National Digital Strategy Advisory Board on May 1 to advise the Library of Congress on national strategies for the long-term preservation of digital materials, to promote collaboration among diverse stakeholder communities, and to assist in developing a national fund-raising strategy.

NATIONAL DIGITAL LIBRARY PROGRAM

During fiscal 2001, the National Digital Library Program continued to receive widespread acclaim for providing free, high-quality, educationally valuable American cultural and historical resources on the Library's American Memory Web site. At year's end, 7.5 million Library of Congress items were available online or in digital archives.

In fiscal 2001, twelve new multimedia historical collections were added to the American Memory Web site, bringing the total to 102. Ten existing collections were expanded with more than 860,000 digital items. In addition, six new Library exhibitions were mounted on the Library's Web site. The online exhibition of *American Treasures of the Library of Congress* was periodically updated to include rotating collection items (see also Appendix G: Online Collections and Exhibitions).

Collaborative Initiatives. Four award-winning LC/Ameritech collections debuted online this year, bringing the total to sixteen. Beginning in 1997, the Library of Congress sponsored this three-year competition with a gift from the Ameritech Corporation to enable public, research, and academic libraries, museums, historical societies, and archival institutions (with the exception of federal institutions) to digitize American history collections and to make them available on the Library's American Memory Web site. Those digital collections complement and enhance the Library's online resources. Thirty-three institutions have now received $1.75 million of support to digitize twenty-three projects.

During fiscal 2001, the NDL Program also engaged in efforts to broaden access to the unique materials digitized for American Memory and to encourage interoperability among cultural repositories. As a beginning, the descriptive records for four American Memory collections have been made available for sharing with other institutions using the emerging standard of the Open Archives Initiative. For the collections made available so far, the records are available either in the machine-readable cataloging (MARC) format or as simple Dublin Core records. The Digital Library Federation is encouraging its members to make the records for their digital resources accessible to other institutions in the appropriate format so that they may be used comprehensively

to build pooled resources or selectively to build services for specialized scholarly communities. Five American Memory collections were contributed to the Cultural Materials Initiative, a pooled resource being assembled by the Research Libraries Group from digital resources of participating members.

Working with the Office of the Librarian, Library Services, and Information Technology Services, the NDL continued to contribute to International Horizons, a collaborative digitization effort. During the year, Spain, the United States, and the American Frontier: Historias Paralelas joined Meeting of Frontiers as the second component of International Horizons. This new site brings together unique collections of the Library of Congress with those of partner institutions in Spain, most notably the National Library of Spain and the Biblioteca Colombina y Capitular of Seville. In March, the Library hosted a visit by the National Librarian of Spain, which cemented a strong collaborative relationship between the two institutions with the acquisition of hundreds of digital items for eventual inclusion on the Historias Paralelas Web site. Drawing on rich Library of Congress collections relating to Spain and Spanish America, staff members selected items to digitize from the Library's general collections; the Law Library; and the Geography and Map, Manuscript, and Rare Book and Special Collections divisions. Following the pilot release, digitization began on two premier collections donated to the Library by Hans P. Kraus: the Sir Francis Drake Collection in Rare Book and Special Collections and the Hans P. Kraus Manuscript Collection.

Educational Outreach. The NDL continued to provide educational outreach to grade K-12 educators through online features such as Today in History, the Learning Page, educator workshops and videoconferences, and other activities in the on-site learning center.

The Today in History site highlights events in American history in a brief daily essay that is linked to the Library's digitized collections. The site remained popular with history and social studies teachers.

Designed for teachers, the Learning Page is a companion Web site to the American Memory collections. It provides search and curricular guidance to teachers and students who use American Memory primary source materials. During fiscal 2001, search indices were updated to include fifteen new American Memory collections and two existing collections with substantial content updates. Ten new essays about the Learn More About It Collection were created for classroom use, and five were updated. One new feature, an American Memory time line, and two substantially updated features, Elections the American Way and Inaugurations, were added to the Learning Page.

American Memory fellows Martha Battle and Mike Larson examine Claudius Ptolemy's *Cosmographia* atlas during a tour of the Geography and Map Division during the fifth annual American Memory Fellows Institute. *(Photo by Elizabeth L. Brown)*

A new activity for students, Copyright on the Web, and a substantially updated student activity, Big Picture Puzzle, were made available. Nine new teacher-created lesson plans to use with K-12 students were added in fiscal 2001.

The Learning Page also supports the NDL teacher-training initiative and other educational outreach efforts available to all educators with Internet access. Fifteen workshops from the NDL teacher-training initiatives were made available on the Learning Page. Descriptive indexes and reservation forms for workshops given in the Learning Center were created as well. A conference page of national and local presentations by Library staff members and teachers working with the Library of Congress initiative was created and added to the Learning Page. A page of downloadable handouts for teachers was added. A quarterly electronic newsletter, written by teachers and school media specialists, was published on the Learning Page through collaboration with the Social Science Education Consortium.

In fiscal 2001, the Library of Congress held its fifth and final American Memory Fellows Institute, welcoming 50 more K-12 teachers and school media specialists into the Library's existing network of 250 master educators. Since 1997, this outreach program has reached nearly all fifty states. In this program, teams of master educators create sample teaching units that draw on the Library of Congress online materials. These teacher-developed lesson plans and

Novelist-anthropologist Zora Neale Hurston conducts an interview in Eatonville, Florida, in June 1935 as part of the effort by the Federal Writers' Project of the Works Progress Administration to document African American folk materials. Her documentation is included in the American Memory online collection "Slave Narratives from the Federal Writers' Project, 1936–1938." *(Photo by Alan Lomax)*

materials are tested and then shared with other educators nationwide on an ongoing basis through the Library of Congress Learning Page. Library of Congress American Memory fellows also assist Library staff members in training other educators.

In fiscal 2001, the Library of Congress held the second Adventure of the American Mind summer institute for teachers. The institute was sponsored by the Education and Research Consortium of Western North Carolina. Library staff members, together with selected American Memory fellows, welcomed fifty educators, largely from western North Carolina and South Carolina to the Library of Congress to learn about primary resources in the curriculum.

The NDL was among twenty organizations invited to attend the 2001 National Education Summit for state governors in Palisades, New York.

In fiscal 2001, the Learning Center hosted 641 programs for 8,882 visitors. The User Services staff designed 5 new education workshops offered to educators either in the 16-seat computer classroom or off-site using the Learning Center's state-of-the-art videoconference equipment. A total of 729 educators attended the 59 in-house workshops, and 1,412 educators participated in 80 videoconferences. The Learning Center also offered 269 theater-style programs for 4,941 guests and 121 intimate programs in its alcove of computer workstations for 228 guests. A total of 95 programs with 1,461 guests used some combination of the Learning Center spaces. In keeping with the Learning Center

focus on education, the classroom, and videoconferencing, guests were nearly all educators, including classroom teachers, librarians, school media specialists, library science graduate students, and undergraduate education majors.

The Learning Center also regularly hosted foreign scholars and dignitaries, as well as members of Congress and their guests, and demonstrated the Web site for members of the public each weekday at noon. In addition to workshop and presentation duties, the Learning Center handled reference service and requests for information. In fiscal 2001, more than 3,400 requests for information were answered via electronic mail.

INFORMATION TECHNOLOGY SERVICES

Fiscal 2001 was a year of significant change in Information Technology Services. The year included major changes in management, and the development of collaborative customer relations was given a new focus. Significant service accomplishments included adding new online collections and services, expanding the emphasis on security and dependability of production systems, installing 2,256 new data network connections, upgrading voice communications hardware and expansion of services, expanding still-image scanning services, and initiating extensive multimedia production services. Fiscal 2001 saw the construction and deployment of the Collaborative Digital Reference Service (CDRS) and the initiation of digital archiving projects with the Internet Archive and the American Physical Society. In those and related projects, ITS worked with internal and external experts to foster improved management of digital assets, including dealing with critical issues related to persistent identifiers, rights and integrity, preservation, and access. In an increasingly insecure world, the Library's systems remained secure throughout the entire year.

Five of thirteen members of ITS senior management, including the director and deputy director, departed from the Library in fiscal 2001 as a result of retirement or resignation. Other ITS managers and staff members filled these positions on an acting basis, with the exception of the deputy director position, which remained vacant at year's end.

ITS acted early in the fiscal year to post vacancies and to select staff members who would bring a range of excellent technical and analytical qualifications to meet the challenges of the future. Significant fiscal benefit is expected with the addition of five veteran voice communications technicians, freeing the Library from dependence on a costly maintenance contract and simultaneously ensuring the continuance of high-quality support at a time when an industry-wide shortage of this type of critical support personnel exists. In another criti-

cal area, two staff members were hired to provide more technical depth to computer security efforts.

Recognizing that the service units are taking on more responsibility for acquiring and implementing their own business application solutions, ITS actively sought opportunities for collaborative support of those units. In support of Library Services' integrated library system (ILS), the Copyright Office's Business Process Reegineering, and various initiatives of Human Resources Services, ITS assumed consultative, analytical, and advisory roles.

ITS introduced new and expanded technical support services in fiscal 2001. Most visibly, the ITS hotline service was expanded to twenty-four hours a day, seven days a week. At the same time, ITS undertook an internal review of all information technology systems and programs. The review considered issues such as the reliability of current storage backup schemes, future supportability of the mainframe, and level of management control currently in place to approve expenditure of IT resources on service unit requests. ITS has improved management and integration of the Library's collection of servers, storage, software, and systems that has been acquired as a result of rapid technical growth and business changes over the past decade. Another emphasis this year involved reevaluating the digital environment and seeking means to provide new levels of stability in a technically sophisticated and risky world.

By applying Capability Maturity Model (CMM) development techniques, ITS began to deliver a new generation of software systems that rely on modular, reusable utilities rather than on custom coding techniques. The Collaborative Digital Reference Service was constructed on these new principles by ITS staff members working with the Remedy Action Request software. This groundbreaking system was developed quickly from specifications developed in real time. The production system performs dependably, and new enhancements appear regularly. The same model is being used to develop the Copyright Imaging System (CIS) and to build implementation strategies for digital management projects such as the Library's Minerva Web site archive. It is also being used to develop strategies for preserving and accessing materials collected and indexed by the Internet Archive, as well as by the American Physical Society journal archive. ITS employed the same approach on smaller systems, such as the Metrochek system and the new Parking Database.

Use of the Library's online computer resources continued to increase. During the fiscal year, 1.4 billion transactions were recorded on all of the Library's computer systems. The average of 118 million transactions per month represents a 31 percent increase over fiscal 2000 figures. The public legislative infor-

mation system known as THOMAS continued to be an enormously popular resource, with more than 10 million transactions logged on average each month. Use of the American Memory collections increased by 50 percent—from an average of 19 million monthly transactions during fiscal 2000 to 28.5 million per month during fiscal 2001. America's Library, an interactive Web site for children and families that was implemented on the Library's official Bicentennial date of April 24, 2000, logged more than 135 million transactions during the year, an average of more than 11 million a month.
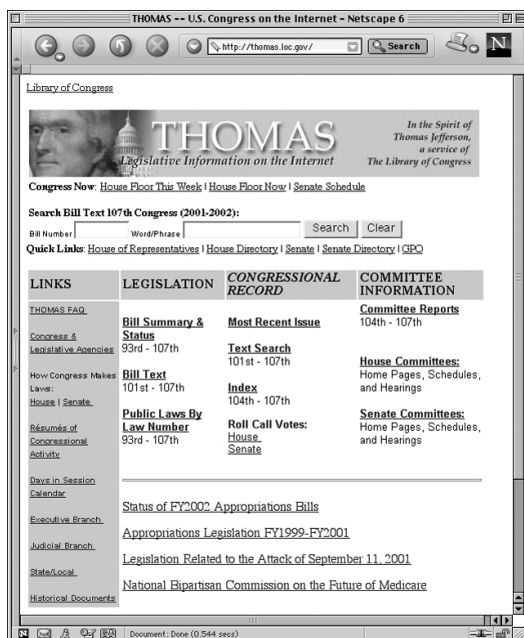
Information Technology Services continued to play a crucial role in the Library's expanding presence on the Internet by providing enhanced technical support. Working with the National Digital Library, ITS mounted twelve new American Memory collections and six new exhibitions on the Library's Web site. The American Memory collections grew so large that they were distributed across multiple storage servers. ITS also introduced a new thumbnail grid display for images, which greatly expedites the ordering process in the Prints and Photographs Division by displaying multiple images for comparison and selection. This feature has been well received by the public.

ITS introduced a new Web site design for THOMAS at the start of the 107th Congress and began incorporating legislative information received directly from the House, Senate, Congressional Research Service (CRS), and Government Printing Office into a new set of information files that are updated several times a day. ITS kept the legislative information on THOMAS current and also monitored public e-mail queries received about the system and its contents, usually responding on the same day.

In addition, ITS created many new Web sites and updated and supported existing sites. Some of the major efforts included the Historias Paralelas Web site; the Globalization and Muslim Societies Web site; Web sites for Contracts and Logistics Services, the Office of the General Counsel, the Library's Internal University, Integrated Support Services; and Web sites on computer security and workplace ergonomics.

In support of the ILS, ITS staff members used their considerable experience with MARC records and their increasingly sophisticated knowledge of the ILS software to accomplish several challenging projects to enhance the ILS data, including testing and replacing more than 500,000 Chinese-character records. This effort, which will allow the Library to convert to the pinyin system for the romanization of Chinese characters, required unprecedented coordination with bibliographic utilities and other libraries worldwide. The initiation of a new type of automated loading of records from the Electronic Preassigned

A new design for the THOMAS Web site was introduced at the start of the 107th Congress.

Card Number (EPCN) program involved establishing, testing, and monitoring new and complex interfaces between two ITS-maintained systems critical to Library Services processing. ILS stability and performance were improved by ITS's proactive efforts to better monitor and manage the available system resources. Finally, ITS staff members completed almost 100 separate requests for importing, exporting, reporting, or updating software or for performing testing on the three ILS servers.

ITS worked closely with the Copyright Office management and staff throughout the initial stages of Copyright Business Process Reengineering (BPR). Managers and analysts from ITS Data Administration and Systems Development Groups were active members of multiple BPR teams and related groups such as the BPR Steering Committee, the Copyright Process Reengineering (CPR) Team, and the Copyright Information Technology Working Group. Those cooperative efforts provided ITS an opportunity to offer strategic advice and guidance as well as to build mutual understandings to meet the need for technology-related services.

ITS support for the Library's basic technology infrastructure was evident in several key areas. A mirrored system was developed for the Legislative Information System at the Senate's Postal Square facility. This facility allows for immediate shifting to a fully functional system in case of failure of the primary system in the Madison Building. An internal study group evaluated the Library's

short-term needs for additional online storage and recommended acquiring an additional twenty terabytes of hard disk storage. The additional hard disk storage was procured at the end of the fiscal year and will be installed during the first quarter of fiscal 2002. ITS reviewed security of its backup and recovery procedures and concluded that an additional level of remote storage was needed. A procurement request was developed to obtain commercial vaulting services and is in the pipeline. However, in the immediate aftermath of the terrorist attacks of September 11, ITS management, as a stopgap measure, negotiated an agreement with an educational institution in Virginia to house a complete set of the Library's backup tapes against the previously unthinkable possibility of a major, catastrophic disaster on Capitol Hill. Storing these backup tapes far out of harm's way ensures the survival of the Library's digital collections.

Centralized processing power increased with the addition of two new enterprise-level servers. One Sun server was added to provide for workload management for the integrated library system. One IBM RS/6000 was added to provide a platform on which ITS software developers can build and test new systems in an environment that will not affect service to users of production systems.

Amid this expansion of server and storage facilities, ITS began to identify those legacy systems and programs still resident and actively used on its aging mainframe equipment. Vendor support for the mainframe technology is rapidly disappearing, and ITS staff members, working with service unit technical representatives, began planning for the managed migration of any remaining mission-critical software on the mainframe to more supportable platforms. The goal is to provide suitable replacement solutions by the time of the planned mainframe retirement in 2004.

ITS completed upgrading 2,256 network connections from Token Ring to Fast Ethernet technology in fiscal 2001. Progress is on track to complete the entire upgrade project by the third quarter of fiscal 2002. These faster network connections will provide more responsive service for data-intensive applications. Additional network reliability and security were implemented for Library staff members and users through the installation of a backup Internet connection, which is designed to be activated automatically when sensors detect that the primary communication has failed. ITS responded to 5,526 formal requests for service, 1,445 workstation problems, 787 reports of problems in application software systems, and 1,440 requests for major and minor additions and changes to telephone service.

Support for multimedia projects and programs increased significantly with

the appointments of six permanent specialists. Special audio-video programs were produced to commemorate the thirtieth anniversary of the Cataloging in Publication Office and the first National Book Festival. Multimedia staff produced a twenty-minute video training class for the Preservation Directorate on the subject of appropriate handling of fragile or valuable materials. Cyber LC, located at <http://www.loc.gov/loc/cyberlc>, carries products captured, digitized, and presented by ITS multimedia staff. The growing list included symposia from the Globalization series, poetry readings, and a series of author's talks sponsored by the Science, Technology, and Business Division. One series, intended to preserve staff expertise for the organization, involved interviews with notable staff members. The series was developed for the succession planning program of the Library's Internal University. Digital capture, conversion, and editing work was provided to numerous events and activities, including the Veterans History Project, National Book Festival, special CRS Webcasts, and several Bicentennial symposia.

Once again, ITS staff published the *Library of Congress Telephone Directory,* a document consulted hundreds of times each day and much appreciated by Library and congressional staff members. The ITS Digital Scan Center (DSC) produced 13,500 image files for an expanding customer base throughout the Library. During the year, the center's service capabilities grew with the addition of a third high-resolution digital scanner and an archival-quality printer. Improved quality assurance and procedures positioned the DSC to meet the Library's growing demands for digital scanning services. The DSC initiated and helped develop a unique scanning technique to digitize the Sergei Mikhailovich Prokudin-Gorskii collection. The technique, digichromatography, provides for the exact registration of the three color-encoded grayscale images and for the production of vibrant, natural color images from tri-part glass plate negatives. The results were manifested in the exhibition titled *The Empire That Was Russia: The Prokudin-Gorskii Photographic Record Recreated.*

During fiscal 2001, ITS continued to safeguard the Library's information systems resources through the implementation of technology solutions and oversight for the Library-wide Computer Security Coordination Group. Two new security staff members provided additional services to users and added depth to systems and network security. To provide secure remote access, ITS provided virtual private network telecommunications connections for more than 100 users. This technology provides secure remote access. A firewall was implemented for the Overseas Operations office in Cairo. E-mail filtering software for GroupWise attachments intercepted more than 9,000 potential

viruses sent to or from Library workstations. Firewall monitoring was enhanced to adhere more closely to current industry-standard policies and procedures. Automatic distribution and updating of antivirus software was implemented. Finally, ITS launched a strong publicity campaign that included the first Computer Security Day celebration, distribution of educational materials, several articles in the *Gazette,* a Technology Users Group presentation, and brown-bag lunch sessions on pertinent topics.